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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,862	12/10/2003	Torsten Berger	SNS-013	8061

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EXAMINER
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CASCHERA, ANTONIO A

ART UNIT	PAPER NUMBER
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2628

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/733,862	<b>Applicant(s)</b> BERGER ET AL.	
	<b>Examiner</b> Antonio A. Caschera	<b>Art Unit</b> 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 56-76 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 56-64, 67-73 and 76 is/are rejected.
- 7) ☒ Claim(s) 65, 66, 74 and 75 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                       |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                      | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 56, 57, 65, 68-73 and 76 are rejected under 35 U.S.C. 102(b) as being anticipated by Dumesny et al. (U.S. Pub 2002/0154132 A1).

In reference to claims 56 and 70, Dumesny et al. discloses a user interface, method and computer system operating a user interface, for applying a texture to a 3D graphic object and modifying the texture using several techniques (see paragraph 9, lines 1-5, paragraph 13, lines 1-7 and paragraph 76, lines 7-11). Dumesny et al. discloses allowing the user to select a defined region of a 3D graphic object and map the selected regions or polygons to a texture map (see paragraphs 13, 44, 47 and 48). Dumesny et al. discloses that after the user has selected the defined region in object space, an associated square region is defined and displayed in texture space (see paragraph 38, lines 5-9 and #110, 111 of Figure 11A). Note, the Office interprets such texture space square region functionally equivalent to Applicant's "planar mesh" limitation. Dumesny et al. further discloses allowing the user to adjust the square region size and shape, in texture space, which inherently alters the mapping of the texture to the object space defined region (see paragraph 48, last 3 lines and paragraph 49). Further note, since the user defined region of the object is only part of the object and the alteration of the texture square region

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modifies the mapping onto such a user defined region, the Office interprets such a user defined region functionally equivalent to the “patch” of Applicant’s claims. Dumesny et al. also discloses assigning texture map coordinate values to the corresponding polygons since when Dumesny et al. performs texture mapping, coordinates of object space and texture map space are associated and texture values are therefore also inherently associated (see paragraphs 4 and 5). Note, the Office interprets the “graphical value” of Applicant’s claim functionally equivalent to the texture value comprised within a texture map as seen in Figure 4 of Dumesny et al.. Further in reference to claim 70, Dumesny et al. discloses a storage medium or device, such as a CD-Rom, hard disk or magnetic disk for storing computer programs which, when executed, perform the above disclosed methods (see paragraphs 75-76). Also, Dumesny et al. discloses a processor for executing the above computer programs (see paragraph 75).

In reference to claims 57 and 71, Dumesny et al. discloses all of the claim limitations as applied to claims 56 and 70 respectively above in addition, Dumesny et al. discloses graphically rendering the object in real-time as the user modifies texture values (see paragraph 49).

In reference to claims 65 and 73, Dumesny et al. discloses all of the claim limitations as applied to claims 56 and 70 respectively above. Dumesny et al. discloses that after the user has selected the defined region in object space, an associated square region is defined and displayed in texture space (see paragraph 38, lines 5-9 and #110, 111 of Figure 11A). Dumesny et al. further discloses allowing the user to adjust the square region size and shape, in texture space, which inherently alters the mapping of the texture to the object space defined region (see paragraph 48, last 3 lines and paragraph 49). Dumesny et al. explicitly discloses, in the example of paragraph 49, that as the user transforms the square region, making it smaller in size, the

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object space user defined region is updated in real time so that the texture map is now stretched over the user defined region (see last 8 lines of paragraph 49). The Office interprets that if reducing the size of the texture space square region results in a loss of quality, because of stretching the texture map over the object, increasing the size of the texture space would conversely provide the effect of gaining quality since a smaller area of the object region would be covered by the texture.

In reference to claims 68 and 76, Dumesny et al. discloses all of the claim limitations as applied to claims 56 and 70 respectively above. Dumesny et al. discloses allowing the user to select a defined region of a 3D graphic object and map the selected regions or polygons to a texture map (see paragraphs 13, 44, 47 and 48).

In reference to claim 69, Dumesny et al. discloses all of the claim limitations as applied to claim 56 above. Dumesny et al. discloses allowing the user to select a defined region of a 3D graphic object and map the selected regions or polygons to a texture map (see paragraphs 13, 44, 47 and 48). Note, the Office sees no indication in Dumesny et al. of performing geometric projection when mapping the texture onto the 3D object in Dumesny et al.

In reference to claim 72, Dumesny et al. discloses all of the claim limitations as applied to claim 71 above in addition, Dumesny et al. explicitly discloses utilizing a CRT as the display device (see paragraph 2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 58-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumesny et al. (U.S. Pub 2002/0154132 A1) in view of Leather et al. (U.S. Patent 6,707,458 B1).

In reference to claim 58, Dumesny et al. discloses all of the claim limitations as applied to claim 56 above however, Dumesny et al. does not explicitly disclose modifying a voxel representation of the object according to the texture values. Leather et al. discloses a method and apparatus for texture tiling in a graphics system (see column 4, lines 38-40) wherein the texture is configured in a tile format (see column 4, lines 1-9 and Figure 20A). Leather et al. further discloses performing embossing type bump mapping effects on incoming processed texture coordinates (see columns 9-10, lines 56-3), the bump mapping further comprising a bump mapping displacement associated with each texture coordinate (see column 10, lines 8-20). Note, the Office interprets the depth/height of the object being altered using the texture bump mapping displacement values of Leather et al., equivalent to the modifying of a voxel representation of the object using the "graphical values" of Applicant's claim.

In reference to claim 59, Dumesny et al. discloses all of the claim limitations as applied to claim 56 above however, Dumesny et al. does not explicitly disclose the texture being of a tiled type. Leather et al. discloses a method and apparatus for texture tiling in a graphics system (see column 4, lines 38-40) wherein the texture is configured in a tile format (see column 4, lines 1-9 and Figure 20A). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the texture tiling techniques of Leather et al. with the graphical object texturing techniques of Dumesny et al. in order to create realistic looking

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surface detail on rendered objects while processing in an efficient and advantageous manner (see column 3, lines 35-36 and columns 3-4, lines 66-4 of Leather et al.).

In reference to claim 60, Dumesny et al. and Leather et al. disclose all of the claim limitations as applied to claim 59 above. Leather et al. discloses a method and apparatus for texture tiling in a graphics system (see column 4, lines 38-40) wherein the texture is configured in a tile format (see column 4, lines 1-9 and Figure 20A). Leather et al. also explicitly discloses improving on the past technique of texture tiling, which used to draw a polygon for each desired tile meaning each tile was constrained to align with a polygon (see column 4, lines 17-20).

In reference to claim 61, Dumesny et al. and Leather et al. disclose all of the claim limitations as applied to claim 59 above. Dumesny et al. discloses graphically rendering the object in real-time as the user modifies texture values (see paragraph 49). Leather et al. discloses a method and apparatus for texture tiling in a graphics system (see column 4, lines 38-40) wherein the texture is configured in a tile format (see column 4, lines 1-9 and Figure 20A).

In reference to claim 62, Dumesny et al. discloses all of the claim limitations as applied to claim 56 above. Dumesny et al. discloses assigning texture map coordinate values to the corresponding polygons since when Dumesny et al. performs texture mapping, coordinates of object space and texture map space are associated and texture values are therefore also inherently associated (see paragraphs 4 and 5). Note, the Office interprets the “graphical value” of Applicant’s claim functionally equivalent to the texture value comprised within a texture map as seen in Figure 4 of Dumesny et al.. Further, the texture value output from a texture map is well known in the art to be a color value as explicitly shown in Leather et al. (see Figures 7A and 7B). It would have been obvious to one of ordinary skill in the art at the time the invention was made

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to interpret the texture value, associated with the selected texture coordinate of a texture map, of Dumesny et al., with a color value since it is well known in the art that a texture map may hold color values, as shown in Leather et al..

In reference to claim 63, Dumesny et al. discloses all of the claim limitations as applied to claim 56 above. Although Dumesny et al. discloses assigning texture map coordinate values to corresponding polygons (see paragraphs 4 and 5), Dumesny et al. does not explicitly disclose the texture map comprising an embossing pattern. Leather et al. discloses a method and apparatus for texture tiling in a graphics system (see column 4, lines 38-40) wherein the texture is configured in a tile format (see column 4, lines 1-9 and Figure 20A). Leather et al. further discloses performing embossing type bump mapping effects on incoming processed texture coordinates (see columns 9-10, lines 56-3), the bump mapping further comprising a bump mapping displacement associated with each texture coordinate (see column 10, lines 8-20). Further note, the Office interprets the displacement value of Leather et al. to inherently define an adjustment along a normal to the surface of a virtual object of Applicant's claim. It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the texturing techniques of Leather et al. with the graphical object texturing techniques of Dumesny et al. in order to create realistic looking surface detail on rendered objects while processing in an efficient and advantageous manner (see column 3, lines 35-36 and columns 3-4, lines 66-4 of Leather et al.).

In reference to claim 64, Dumesny et al. and Leather et al. disclose all of the claim limitations as applied to claim 63 above. Dumesny et al. discloses graphically rendering the object in real-time as the user modifies texture values (see paragraph 49). Leather et al. discloses



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a method and apparatus for texture tiling in a graphics system (see column 4, lines 38-40) wherein the texture is configured in a tile format (see column 4, lines 1-9 and Figure 20A).

***Allowable Subject Matter***

3. Claims 66, 67, 74 and 75 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In reference to claims 66 and 74, the prior art (Dumesny et al. and Leather et al.) does not explicitly disclose the mapping scheme modeling at least a plurality of points of the planar mesh utilizing connected springs, reducing an energy associated with the springs by adjusting the points of the planar mesh, in combination with the further limitations of claims 65 and 73, from which claims 66 and 74 depend upon.

In reference to claims 67 and 75, claims 67 and 75 depend upon objected to claims 66 and 74 respectively above and are therefore also objected to.

***Response to Arguments***

4. The addition of claims 65-76 is noted.

5. Applicant's arguments, see page 10 of Applicant's Arguments, filed 07/06/06, with respect to objection of the drawings have been fully considered and are persuasive. The objection of the drawings has been withdrawn since all reference numbers have been accounted for within the drawings and specification.

6. Applicant's arguments filed 07/06/06 have been fully considered but they are not persuasive.

In reference claims 56-64, Applicant argues that neither Dumesny et al. nor Leather teach the "mapping scheme" limitation of the claims, as newly amended (see page 11, 3<sup>rd</sup> to last paragraph of Applicant's Remarks). The Office disagrees and points to paragraph 38, lines 5-9 and #110, 111 of Figure 11A of Dumesny et al. where he discloses that after the user has selected the defined region in object space, an associated square region is defined and displayed in texture space. Dumesny et al. further discloses allowing the user to adjust the square region size and shape, in texture space, which inherently alters the mapping of the texture to the object space defined region (see paragraph 48, last 3 lines and paragraph 49). Therefore the Office interprets Dumesny et al. to disclose the newly amended claim language of claims 56-74.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Antonio Caschera whose telephone number is (571) 272-7781. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung, can be reached at (571) 272-7794.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231


**or faxed to:**

**571-273-8300 (Central Fax)**

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (571) 272-2600.

aac

 PATENT EXAMINER  
9/12/06

  
KEE M. TUNG  
SUPERVISORY PATENT EXAMINER